

FIG. 17 diagrammatically illustrates a top view of a hinge arm cap and compression spring mounted on a hinge arm shaft;

FIG. 18 diagrammatically illustrates a hinge arm cap; and

FIG. 19 diagrammatically illustrates a perspective view of a hinge arm cap affixed to an end portion of a hinge arm shaft extending through a hinge plate.

DETAILED DESCRIPTION

The following description will detail the manner in which the display panel cover lid of the above-described craft unit is mechanically attached by means of a left side lid pivot attachment adjoining the intersection of the left side portion with the upper end portion of the craft unit, and a right side lid pivot attachment adjoining the intersection of the right side portion with upper end portion of the craft unit. (It is to be understood that a left side component is complementary or a mirror image of a right side component.) As will be described, the lid pivot attachments are constructed and assembled, so that the lid may be stably positioned in any one of three attitudes (closed, open, and fully extended). As a consequence the lid is able to provide protection for the craft unit's display panel when the unit is not in use, to allow the craftsperson access to (viewing of) the display panel, and to allow the lid to be used as a mechanical prop or support for the craft unit, when the craft unit is placed on a support surface.

Referring now to FIGS. 5, 6 and 7, which are respective perspective top, top perspective and bottom perspective views of the pivotable display panel lid, a lid 50 is shown as having a generally convex configuration, as viewed from its top surface 103. The perimeter of lid 50 is defined by a front edge 105, a rear edge 106, a left side panel 107 and a right side panel 109. Raised (e.g. embossed) regions 111 on side panels 107, 109, facilitate a craftsperson grasping and pivoting the lid away from its closed attitude directly atop the display panel, as shown in FIG. 2, to its open or extended attitudes of FIGS. 3 and 4. Disposed along rear edge 106 of lid 50 is a generally longitudinally shaped lid pin support element 115. Lid pin support element has first and second ends 117 and 119, from which respective lid pin elements 131 extend toward the left and right side panels, so that they may engage left side and right side hinge assemblies 121 and 123, respectively.

As shown in greater detail in FIG. 8, an individual lid pin element 131 has a cylindrical body portion 133, a first end 135 of which has a reduced thickness portion 137 defined by generally flat surfaces 141 and 143, which are chamfered to a prescribed depth 145 of cylindrical body portion 133, terminating at surfaces 147 and 149. Extending axially from a second end 151 of cylindrical body portion is a reduced diameter cylindrical portion 153. Reduced diameter cylindrical portion 153 is sized to receive a compression spring 155 and fit, together with the compression spring, into a cylindrical bore 157 of one end of lid pin support element 115.

Extending generally transversely from the second end 151 of cylindrical body portion 153 is an arm 161, which is joined to a tab element 163. Arm 161 is accommodated within a respective slot 162 in a longitudinal channel element, shown at 164 in the perspective bottom view of the lid of FIG. 9. As shown, channel element 164 is disposed immediately adjacent to lid pin support element 115 at the rear edge 106 of lid 50. Tab element 163 is tapered from a first end 165 thereof to a second end 167. Tab element 163

has textured top surface 166, to allow a craftsperson's finger to readily slide or translated the tab element. Tab element 163 also has a generally flat bottom surface 169, to conform with the underside surface 101 of the lid, so as to allow the tab element to be translated or slide transversely along the underside of the lid.

Compression spring 155 serves to bias its associated lid pin element toward a respective side panel of the lid, whereby the reduced thickness portion 137 of the first end 135 of the lid pin element 131 is normally urged into engagement with a slot defined between flat surfaces 171 at an interior bore 173 of a hinge arm element 175 of a respective one of hinge assemblies 121, 123, as shown in the top view of the lid in FIG. 5, the bottom perspective view of FIG. 9 and the top perspective view of FIG. 10.

Referring now to FIGS. 11-14, the structure of a respective hinge assembly is shown as comprising a hinge plate 181 having a generally semicircular perimeter. Hinge plate is fixedly attached to a respective side of the craft unit, for example, by adhesive attachment or mechanical fasteners. A first side 183 of hinge plate 181 is generally flat and has a circular bore 185 therethrough. Bore 185 is sized to accommodate a generally cylindrical shaft 182, which extends from a first side 184 of a hinge arm plate 186 of hinge arm element 175. Hinge arm element 175 has a cylindrical post 187 extending from a second side 188 thereof.

From a first end 191 of the cylindrical post 187, the above-referenced longitudinal bore 173 extends to a prescribed depth and terminates at a slot defined between flat surfaces 171 which, as noted above, are sized to engage and capture the reduced thickness portion 137 of the first end 135 of the lid pin element 131, when the lid pin element is biased into the hinge arm element by its associated compression spring. Adjacent to the shaft 182 is a hemispherical hillock or bump 201. When the shaft 182 of hinge arm 175 is inserted into bore 185 of hinge plate 181 and urged outwardly from a second side 189 of hinge plate 181 by the action of a compression spring, to be described, bump 201 is urged into intimate contact with the bottom of an arcuate channel or depression 203 formed in the first side 183 of hinge plate 181. Arcuate depression 203 has terminal ends 202 and 204 which are deeper than the remainder of the depression, so that bump 201 may be firmly seated therein, as the result of a biasing force imparted by a compression spring 227 that surrounds shaft 182, and is urged against a hinge arm cap 221, as diagrammatically illustrated in FIGS. 17, 18 and 19.

Arcuate depression 203 has a radial length 205 that limits pivotable movement of the lid to an arc in a range on the order of 90°-110° between its closed and open positions, as long as the tab elements 163 are in their normally spring biased positions, urging the reduced thickness portions 137 of their associated lid pin elements 131 into engagement with the slots defined between flat land surfaces 171 of the interior bores 173 of the hinge arm elements 175 of the hinge assemblies 121, 123. However, translation of tab elements 163 against the biasing of compression springs 155, disengages the reduced thickness portion 137 of the first end 135 of each lid pin element 131 from the flat surface 171 at the interior bore 173 of the hinge arm element 175 of a respective one of hinge assemblies 121, 123, thereby allowing the lid 50 to rotate on the order of 180° from its open position, shown in FIG. 3, to its fully extended position, shown in FIG. 4. In this fully extended position, when (finger) pressure against the tab elements 163 is released and the tab elements 163 are allowed to again be biased by compression springs 155 into bores 173, the reduced thickness portions